



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

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MEMORANDUM

Date: December 30, 1994
From: Paul E. Takács, IEPA/BOL/NPL
To: Monica Rebbe, IDPH
Subject: L1630200005 -- St. Clair County
Sauget Sites (Area 1, Area 2) -- Sauget
Superfund/Technical Reports

The primary purpose of this memorandum is to present and interpret the results from a sampling event that IEPA was tasked to perform on November 9 and 10, 1994 at the Sauget Area 1 and Area 2 Sites. This sampling entailed the collection of sixteen surface soil samples within Site Q and near Site G (see Attachment A).

As outlined in the September 6 proposal to the Illinois Department of Public Health (IDPH) (see Attachment B), the objective of the sampling event was to gather data on areas in the Sauget and Cahokia area that were impacted by last year's flooding. This project represents a cooperative effort between IEPA and IDPH. All analytical costs were paid for by IDPH.

Actual field sampling was performed by Tom Miller and Doug Hayward of IEPA's Collinsville office with Monica Rebbe (IDPH) and Paul Takacs (IEPA) providing general oversight and assistance. The sixteen soil samples were sent to Applied Research and Development Laboratory (ARDL) in Mt. Vernon for analysis. ARDL was picked because of its proximity to the site.

Each sample was collected with a stainless steel spoon, sealed in a glass jar and packed with blue ice before shipping as per normal IEPA guidelines. One trip blank was sent to ARDL along with each group of samples that were taken on both days. All samples arrived at ARDL on the same day they were taken. Analyses were then run for volatile and semivolatile organic compounds, pesticides, PCBs and inorganics. As per the Health and Safety Plan (Attachment C), the sampling was performed in Level C protection.

Inorganics

In general, the samples ranged from very low to high levels of contamination. The first group of samples were taken in the east borrow pit of Site Q. Previous site visits have noted two large mounded areas near the west-central portion of this pit. Two soil samples each were taken around the edges of both mounds where drums and waste piles were exposed. Sample X101 was a grayish waste

material that had fairly high levels of antimony (157ppm), cadmium (2,260ppm), chromium (3,650ppm), lead (7,690ppm), mercury (4.9ppm), nickel (153ppm), selenium (59.9ppm) and cyanide (3.3ppm). Sample X102 was a white crumbly waste. It had only low levels of inorganic contamination with magnesium (4,259ppm) being most significant. The next sample, X103 was a bluish-grey waste that had high levels of antimony (17,900ppm), arsenic (216ppm), copper (1,630ppm), lead (195,000ppm) and silver (30.2ppm). Sample X104, similar to X102, contained the white crumbly substance that had similar contaminants (magnesium @ 4,600ppm). Samples X105 and X106 were both located in waste piles near the northern portion of the borrow pit along the west boundary. X105 was a grayish crystalline substance, which did not appear to have inorganic contamination (although the sample did have a pH of 2.6). X106 was a light blue flaky material that also did not appear to have significant inorganic contamination. Samples X107 and X108 were also taken at the northern portion of the pit. X107 was taken on a ridge of what appeared to be waste material, although the reddish material resembling clay in this sample did not appear to have significant inorganic contamination. X108 was the northernmost sample taken in the east borrow pit. It was dark grey in color and had rather significant concentrations of lead (571ppm).

Samples X109, X110 and X111 were collected along the east bank of the west borrow pit with X109 and X110 taken from one waste pile that resembled the one X105 and X106 came from in the other borrow pit. X109 was a reddish grey waste that did not contain high levels of organics, while X110 contained antimony (47.6ppm), arsenic (19.3ppm), copper (226ppm), lead (5,320ppm), nickel (371ppm), and silver (28.9ppm). Both samples also had pH's (3.6 and 3.7, respectively). Sample X111 was a grayish-white material collected south of the above-mentioned samples and contained nickel (25.9ppm) and vanadium (23.1ppm).

Samples X112 and X113 were taken along the river bank, just south of Site R. Both samples contained a hard blackish substance that appeared to have been disposed of in drums. X112 contained notable levels of cadmium (56.2ppm) and zinc (10,300ppm), while X113 was found to contain magnesium (4,710ppm).

The remaining samples (X114, X115 and X116) were collected around Site G. Both X114 and X115 were soil samples collected in lower elevation areas to the south of the southern Site G fence that could have received runoff from Site G. These samples showed rather high levels of copper (675ppm in X114 and 1,150ppm in X115), lead (172ppm in X114), nickel (32.7ppm in X114 and 38.5ppm in X115) and vanadium (23.3ppm in X114 and 22.7ppm in X115). The last sample (X116) was located in a ridge off of the southwest corner of Site G. X116 which was a brownish waste material containing significant levels of copper (515ppm), mercury (4.7ppm) and high levels of zinc (38,200ppm).

Volatile Organic Contaminants

Only X101, X106, X115 and X116 showed any significant measurable

levels of VOCs. VOCs at X101 consisted of chlorinated solvents and associated degradation products (1,2-DCA @ 240ppb, 1,1-DCE @ 24ppb and 1,1,1-TCA @ 10Jppb). There were also minor levels of BTX compounds, methylene chloride and acetone in this sample and a few others. X106 had a 1,1,1-TCA concentration of 18ppb. X115 and X116 had methylene chloride concentrations of 28ppb and 630Eppb, respectively (analyses at these locations did not flag these compounds as laboratory contaminants).

Semivolatile Compounds

With the exception of PNAs and the tentatively identified compounds (TICs), most of the samples did not show high measurable levels of semivolatile compounds. The analytical results may be somewhat misleading, however, because of the presence of very high levels of BEHP in the laboratory blanks. Because of these levels (up to 110,000,000Bppb), detection levels were very high and the presence of certain semivolatile compounds could have been masked. Sample X107 had a total concentration of 1030Jppb of 2-methylphenol, 4-methylphenol, isophorone and 2,4-dimethylphenol. As far as PNAs were concerned; X108 had PNAs at 310Jppb, X109 at 1182Jppb, X110 at 380Jppb and X111 at 723Jppb. Most of the TICs consisted of phthalates and unknown compounds. X115 had 55,200Jppb of TICs and X116 had 66,100,000Jppb. Many of the other samples had various phthalates on TIC sheets that ranged from 0 to 83,890,000Jppb.

Pesticides and PCBs

ARDL did not note any measurable levels of pesticides, but PCBs did show up with high levels at several locations. The more significant total PCB concentrations were 223,000ppb at X101, 26,000ppb at X104, 31,900ppb at X105DL, 39,000ppb at X107DL, 79,000ppb at X108DL and 90,000ppb at X116DL. Aroclors 1254 and 1260 were prevalent in most samples and Aroclor 1248 showed up at X103, X107, X108 and X116. Various PCB precursors also were noted on the semivolatile TIC sheets for several samples.

Conclusions

In general, the presence of the phthalate compounds caused very high detection limits in many of the samples that most likely masked the presence of sample contaminants. Also, given the appearance of the sample materials, the contaminant levels appeared to be lower than what was expected.

Samples of the mounded waste materials were rather high in metals, indicating the possible presence of paint sludge materials. Samples here also showed high levels of PCBs which indicated that the source of PCBs found in sediments of the east borrow pit might have originated from the mound or drums around the mound.

The presence of rather low pH levels at several of the samples

might indicate the presence of an acid-type waste. Samples that had low pH levels had high sulfate concentrations as well as a yellowish color. This may indicate a sulfuric acid waste residue.

Although not initially a part of the sampling plan, the sampling at X116 showed the presence of a waste material with very high levels of unknown compounds. The significant levels of PCBs (total 90ppm and nearly identical Aroclors) may indicate similar waste generators/transporters or landfill operators associated with Site G. Aerial photos from the 1950s appear to indicate waste disposal occurred outside of the fenced areas of Site G.

Recommendations

Further sampling should be performed in many of the areas that were sampled because of lab contaminants causing interference.

Because of the presence of waste materials in areas that were impacted by last year's flood, further sampling should be performed in the borrow pits at Site Q. The above conclusions note the sampled waste materials at Site Q as probable sources of contamination within both borrow pits, however all sources within these pits have not yet been fully characterized.

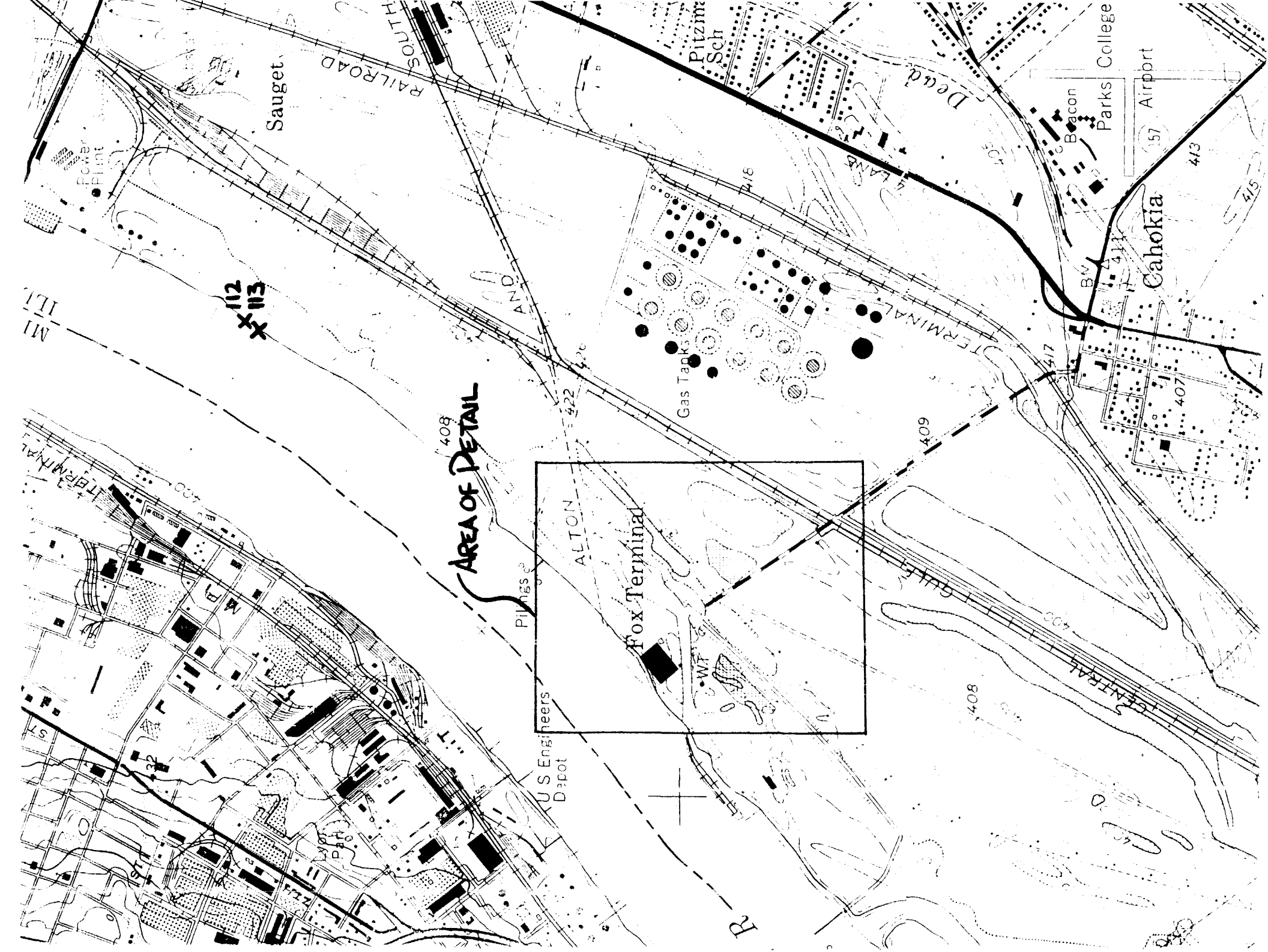
Sampling at X116 shows PCB concentrations in excess of removal action levels and because of this, a recommendation should be made to either have the wastes removed or fenced in. At minimum, further sampling should be performed along the "ridge of waste material" having the same visual characteristics of X116.

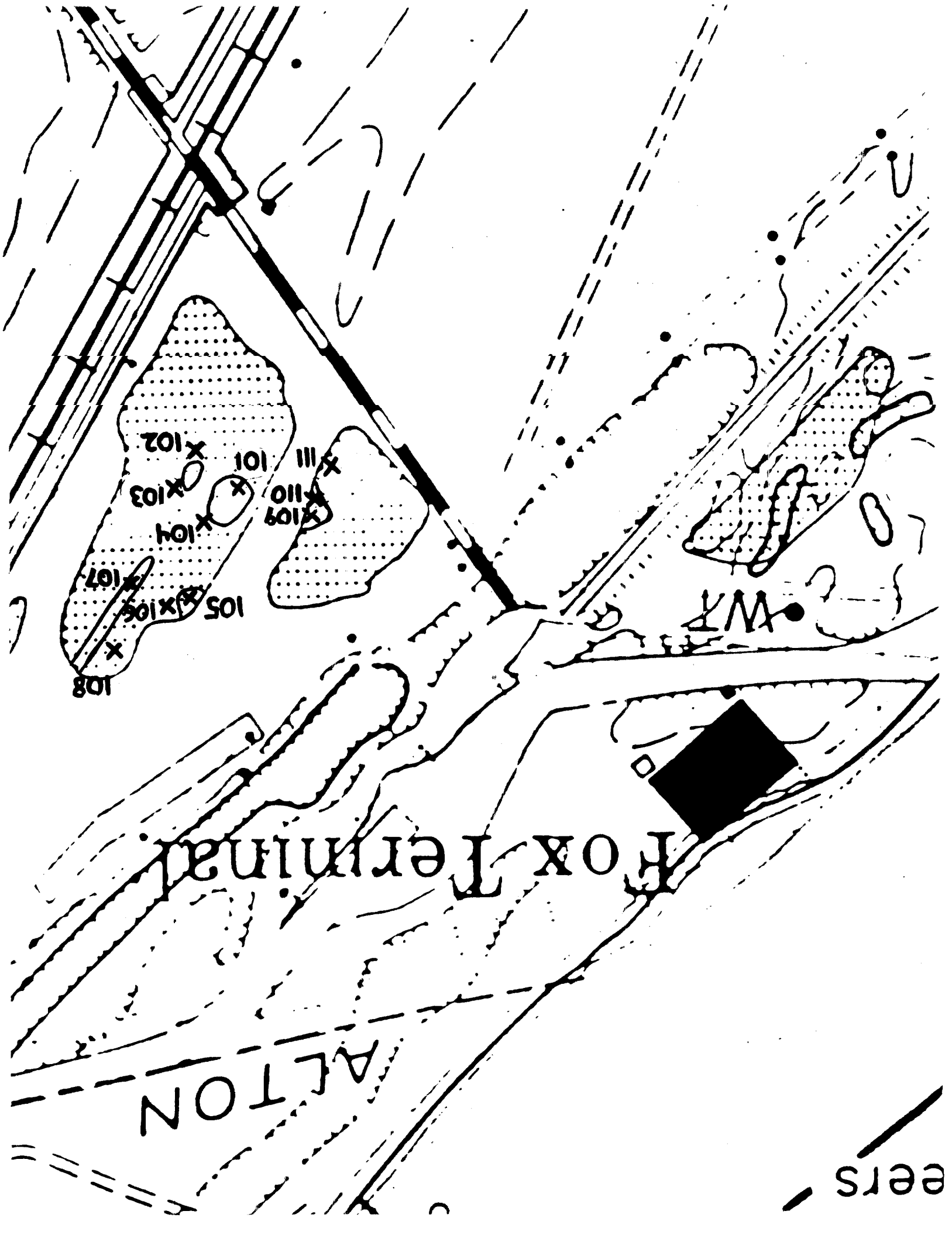
Further sampling should be performed in the low-lying areas south of the Site G fence. Two samples revealing only minor PCB contamination do not indicate a "clean" area given the PCB levels (74,000,000ppb) that were found in soils at Site G.

If you have questions or concerns about the above, please give me a call at 5-3912.

Attachments - Attachment A (Sampling Map)
Attachment B (IDPH Proposal/SAP)
Attachment C (Health and Safety Plan)
Attachment D (Analytical Results)

cc: Terry Ayers (w/o attachments)
Larry Eastep (w/o attachments)
Kim Hubbert
Tom Miller
David Webb, IDPH
Division File





ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS
ROUTE SLIP

DATE 17 Sep 97

TO: SAM BORRIES
USEPA REGION V, HSE-5J
77 W. JACKSON BLVD.
CHICAGO, IL 60604-3590

Approval	Remarks
<input checked="" type="checkbox"/> As requested	MEMO FOR IEPA/IDPH SITE & SAMPLING EVENT OF 11/94. I ASSUME YOU HAVE THE DATA...
<input type="checkbox"/> Comment	
<input type="checkbox"/> Confer	
<input type="checkbox"/> For information	
<input type="checkbox"/> For recommendation	
<input type="checkbox"/> Investigate	
<input type="checkbox"/> Necessary action	
<input type="checkbox"/> Note and destroy	
<input type="checkbox"/> Note and file	
<input type="checkbox"/> Note and return	
<input type="checkbox"/> Per conversation	
<input type="checkbox"/> Prepare reply	
<input type="checkbox"/> Signature	

FROM: PAUL MARACE